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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/887,630

Filing Date: June 22, 2001

Appellant(s): CARLSSON ET AL.

MAILED

OCT 18 2004

GROUP 2800

Edward H. Green, III
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 30, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is deficient because applicant has presented a new figure (Figure A) and a corresponding description (pages 3-4) which is not exemplary of the invention disclosed in applicant's specification.

Specifically, by presenting new Figure A, applicant has introduced *new* communication indicators (i.e., distinct, solid and dashed arrows between block elements), and an entirely new communication (i.e., dashed arrow between element 38 and element 32), which are *not* shown in applicant's originally filed figures and which do not appear to be supported by applicant's specification. Furthermore, applicant has *changed* the term "SMLC" from its original title of "Serving Mobile Location Center" defined in applicant's specification, to the much more broad title of "Location Server" (e.g., "Location Server 38 (SMLC)" in Figure A, and "location server 38" recited in pages 3-4 of the brief in place of SMLC or serving mobile location center) in an attempt to distinguish applicant's invention from the cited art.

Accordingly, Figure A and its corresponding description contained in the brief (pages 3-4) should not be considered as fairly representing a summary of applicant's invention according to applicant's specification. The introduction paragraph provided by examiner in section 11 of this Answer provides a more reasonable summary of the invention with respect to applicant's claims.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-20 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

6,522,889	AARNIO	2-2003
6,167,040	HAEGGSTROM	12-2000

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,522,889 to Aarnio in view of U.S. Patent No. 6,167,040 to Haeggstrom.

Regarding claims 1, 5, 9, 13 and 17, Aarnio teaches a method of transmitting a location service message between a location server and a mobile station in a packet network (e.g., see FIG. 1). Specifically, regarding claims 1, 9 and 13, Aarnio teaches transmitting the location service message (e.g., location information, see col. 4, lines 18-27) in a downlink from the location server (e.g., LS 22) to a GPRS network (e.g., GRPS network 14) (e.g., see col. 3, line 65 – col. 4, line 22), wherein a GPRS network implicitly comprises a base station subsystem and a serving GPRS support node (which is also admitted by applicant, see Applicant's Remarks, August 14, 2003, pages 3-4); and forwarding the location service message from the GPRS network (e.g., GPRS network 14) to the mobile station (e.g., MS 12) (e.g., see col. 4, lines 18-19). Additionally, regarding claims 5, 9 and 17, Aarnio teaches transmitting a location service message (e.g., request to identify MS location) between a mobile station and a location server in

the opposite direction in an uplink (e.g., from the mobile station to the GPRS network to the location server, see col. 3, lines 40-42).

Accordingly, Aarnio clearly teaches both the forward/downlink and reverse/uplink communication of a location service message between a location server (e.g., LS 22) and a mobile station (e.g., MS 12), via a GPRS network (e.g., GPRS network 14) implicitly comprising both a base station subsystem and a serving GPRS support node.

However, Aarnio may not specifically disclose that within the GPRS network (e.g., 14), the location message is first forwarded to the base station subsystem and then forwarded to the serving GPRS support node from the base station subsystem in the downlink, and vice versa in the uplink.

Haeggstrom also teaches methods of transmitting location service messages in a GPRS network system. Furthermore, Haeggstrom teaches, in a GPRS network, a possible configuration (e.g., FIG. 2) for arranging communications in a GPRS network comprising a base station subsystem and serving GPRS support node. Specifically, Haeggstrom teaches a serving GPRS support node (e.g., SGSN) is coupled to a location server (e.g., HLR, VLR) by means of a base station subsystem (e.g., at BSC, see col. 4, lines 51-54 wherein BSS comprises BSC).

Accordingly, Haeggstrom clearly teaches the location message must first be forwarded to the base station subsystem from the location server (e.g., via the only connection provided from HLR to MSC/VLR to BSC, see FIG. 2) and then forwarded to the serving GPRS support node from the base station subsystem (e.g., via the only connection from BSC to SGSN, see FIG. 2) (e.g., see col. 4, line 6 – col. 5, line 10).

The teachings of Haeggstrom provide improved system functionality, whereby a mobile telephone operator can provide calls between a telephone in a data network and a mobile station without using any public switched telephone network, which further, achieves improved speech quality (e.g., see col. 3, line 50 – col. 4, line 19). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the configuration of Haeggstrom within the GPRS network (14) of Aarnio (i.e., coupling the serving GPRS support node to the location server 22 of Aarnio by means of the base station subsystem to accommodate the above-mentioned order of communications of Haeggstrom) in order to provide the additional feature of connection of calls between a telephone in a data network and a mobile station without using any public switched telephone network, further achieving improved speech quality.

Regarding claims 2, 7, 10, 14 and 19, Aarnio further teaches encapsulating (e.g., via conversion server 20, see col. 3, lines 8-14) the location service message (e.g., comprising digital image data) in a link control message (e.g., comprising text format) and transmitting the link control message from the GPRS support node (e.g., within GPRS network 14) to the mobile station (e.g., MS 12) in the downlink, and from the mobile station to the GPRS support node in the uplink.

Regarding claims 3, 6, 11, 15 and 18, as discussed above regarding claims 1, 5, 9, 13 and 17, while Aarnio may not specifically disclose a specific route of messages within the GPRS network, Haeggstrom teaches a base station subsystem (e.g., BSS comprising BSC and BTS) serves as an intermediary for communications between a serving GPRS support node (e.g., SGSN) and a mobile station (e.g., MS). The teachings of Haeggstrom provide connection of calls between a telephone in a data network and a mobile station without using any public

switched telephone network, further achieving improved speech quality (e.g., see col. 3, line 50 – col. 4, line 19). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the configuration of Haeggstrom within the GPRS network (14) of Aarnio (i.e., coupling the serving GPRS support node to the location server 22 of Aarnio by means of the base station subsystem to accommodate the above-mentioned order of communications of Haeggstrom) in order to provide the additional feature of connection of calls between a telephone in a data network and a mobile station without using any public switched telephone network, further achieving improved speech quality.

Regarding claims 4, 8, 12, 16 and 20, Aarnio teaches ciphering the link control message (e.g., converting digital image data to a text format, see col. 3, lines 8-10) and deciphering the link control message (e.g., wherein the location information may be take the form of a diagram or audible message, see col. 4, lines 18-27); wherein in the downlink ciphering implicitly occurs at the GPRS support node and deciphering occurs at the mobile station, and in the uplink ciphering occurs at the mobile station and deciphering occurs at the GPRS support node.

(11) Response to Argument

Prior to responding to each of applicant's arguments in the brief, a general discussion of applicant's claims is in order. Applicant has claimed (i.e., in claims 1 and 13), generally, a path of transmitting a message from a server to a mobile device. The *only* identified characteristic of this message is that it comprises location information (i.e., it is a "location service message"). The remainder of the claim, then, broadly recites a path of transmission from the server to a base station, then to a support node, and finally to the mobile device. *No functionality, performance*

or results outside of simply transmitting the message along the specified path is claimed.

Additional independent claims merely recite the alternate transmitting (i.e., in claims 5 and 17) or additional transmitting (i.e., in claim 9) of such a message in the reverse order (i.e., from mobile station, to support node, to base station, to server). Thus, despite applicant's detailed specification, the claims under consideration are directed towards transmitting a message along a path, wherein the message comprises location information, and wherein the path comprises a server, base station, support node, and mobile device.

Motivation to Combine

Applicant argues (page 6, first paragraph to page 7, continued paragraph) that while Aarnio may be directed to location service, Haeggstrom does not teach a similar location service according to applicant's claims. However, Aarnio is relied upon for clearly teaching the location service with a GPRS network as recited in applicant's claims, and Haeggstrom is relied upon to provide further configuration of a GPRS network for providing a more robust and improved system. As discussed above, Haeggstrom clearly teaches a location message must first be forwarded to the base station subsystem from the location server (e.g., via the only connection provided from HLR to MSC/VLR to BSC, see FIG. 2) and then forwarded to the serving GPRS support node from the base station subsystem (e.g., via the only connection from BSC to SGSN, see FIG. 2) (e.g., see col. 4, line 6 – col. 5, line 10). The teachings of Haeggstrom provide improved system functionality, whereby a mobile telephone operator can provide calls between a telephone in a data network and a mobile station without using any public switched telephone network, which further, achieves improved speech quality (e.g., see col. 3, line 50 – col. 4, line

19). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the configuration of Haeggstrom within the GPRS network (14) of Aarnio (i.e., coupling the serving GPRS support node to the location server 22 of Aarnio by means of the base station subsystem to accommodate the above-mentioned order of communications in Haeggstrom) in order to provide the additional feature of connection of calls between a telephone in a data network and a mobile station without using any public switched telephone network, further achieving improved speech quality. Thus, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Accordingly, applicant's argument is not persuasive.

Further, applicant argues (page 7, first paragraph to page 8, second paragraph) that because the advantage provided by Haeggstrom (i.e., connecting calls between a telephone in a data network and a mobile station without using a PSTN which provides improved speech quality) is not considered by Aarnio, it would not be obvious to combine the teachings of Haeggstrom to that of Aarnio. However, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Aarnio and Haeggstrom teach systems

utilizing a GRPS network, and Haeggstrom specifically suggests a particular configuration for a GPRS network, and further provides motivation for utilizing this GRPS configuration by providing the additional feature of connecting calls between a telephone in a data network and a mobile station which yields improved speech quality. Specifically, as discussed above, the teachings of Haeggstrom provide improved system functionality, whereby a mobile telephone operator can provide calls between a telephone in a data network and a mobile station without using any public switched telephone network, which further, achieves improved speech quality (e.g., see col. 3, line 50 – col. 4, line 19). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the configuration of Haeggstrom within the GPRS network (14) of Aarnio (i.e., coupling the serving GPRS support node to the location server 22 of Aarnio by means of the base station subsystem to accommodate the above-mentioned order of communications of Haeggstrom) in order to provide the additional feature of connection of calls between a telephone in a data network and a mobile station without using any public switched telephone network, further achieving improved speech quality. Thus, applicant's argument that it would not be obvious to combine the teachings of Haeggstrom to that of Aarnio is not persuasive.

Still further, applicant argues (page 8, third paragraph to page 9, first paragraph) that examiner's conclusion of obviousness is based upon improper hindsight reasoning. However, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed

invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, Aarnio clearly teaches, generally, utilizing a GPRS network (e.g., GPRS network 14), while Haeggstrom further teaches a particular configuration for such a GPRS network. Accordingly, one of ordinary skill in the art having knowing of Haeggstrom and Aarnio would be motivated to apply the particular GPRS network configuration teachings of Haeggstrom to the generally disclosed GPRS network in the system of Aarnio in order to provide the additional advantages already discussed, such as, the additional feature of connecting calls between a telephone in a data network and a mobile station which yields improved speech quality. Accordingly, applicant's argument that examiner's conclusion of obviousness is based upon improper hindsight reasoning is incorrect.

Definition of "Location Server"

Applicant argues (page 9, second paragraph to page 15, continued paragraph) that applicant's recitation of a "location server" in applicant's claims is different from the location server taught by Aarnio and Haeggstrom (wherein Aarnio specifically uses the exact phrase "location server" to identify "location server 22" in FIG. 1, and Haeggstrom uses the terms "home location register (HLR)" and "visitor location register (VLR)" in FIG. 2). Clearly, Aarnio teaches a "location server" (e.g., see "location server 22" in FIG. 1). This obvious teaching aside, applicant additionally argues that applicant's specification further defines a location server as being distinct from an HLR/VLR and that applicant's location server has all of the functionalities of a Serving Mobile Location Center (SMLC). Applicant also went so far as to

include a *new* figure in the brief (Figure A) which *changes* the presentation of applicant's SMLC to instead be identified as a "location server (SMLC) 38" (see section 5 of this Answer for Examiner's comments on this change in applicant's summary of the invention). If applicant had intended to claim a "Serving Mobile Location Center (SMLC)" comprising functionality discussed in applicant's specification, applicant should have recited "Serving Mobile Location Center (SMLC)" in the claims comprising such functionality instead of reciting the much broader phrasing of "a location server" without any reference to additional functionality. As the claims are presently written, the "location server" in applicant's claims is *clearly* taught by Aarnio's "location server 22" in FIG. 1 as discussed above. Still further, the HLR/VLR taught by Haeggstrom suggests clear operation as a location server as discussed at pages 4-5 in the Final Action mailed March 10, 2004, wherein examiner provided additional evidence that not only does both the HLR/VLR of Haeggstrom and an HLR/VLR as commonly known in the art provide functionality as a "location server", but even applicant's specification indicates that applicant's HLR comprises functionality of a "location server", disclosing:

‘ “The Telecommunications Handbook” (2000, CRC Press LLC) states the following about an HLR: “Information about each subscriber is stored by its mobile service provider in a Home Location Register (HLR). An HLR is informed when one of its subscribers registers so that calls can be forwarded to a roaming subscriber. ... When a mobile station is called, ... *MSC checks with its HLR to discover the location of a registered called mobile*” (emphasis added). Still further, applicant equates HLR 36 of applicant's Figure 1 to the HLR of Haeggstrom in order to attempt to distinguish SMLC 38 as a location server separate from the functionality of an HLR (e.g., see Remarks, December 29, 2003, page 5, first paragraph). However, applicant clearly discloses that such an HLR is part of an operation whereby location information is transferred between an HLR and a mobile terminal (subscriber) by stating, “The HLR 36 stores subscriber information and the current *location of the subscriber*. ... The network updates the location information in the HLR 36....” (emphasis added) (specification, page 5, lines 18-21). Clearly, in agreement with “The Telecommunications Handbook”, applicant discloses an HLR is identified as having location information transferred between it and a mobile terminal. Thus, having equated the HLR of Haeggstrom to the HLR of

applicant's Figure 1, applicant's argument that the HLR of Haeggstrom does not have location information transferred between it and a mobile terminal is not persuasive, since such an operation of an HLR is well known in the art, as indicated by "The Telecommunications Handbook", and is further taught by applicant (specification, page 5, lines 18-21)."

Thus, even if applicant was permitted to amend the figures and description in applicant's specification to change "SMLC" to "location server", or if applicant was permitted to enter completely new figures as attempted by applicant in the brief by inserting new Figure A, applicant's specification *still* teaches that an HLR also is reasonably interpreted to be a "location server" (e.g., see specification, page 5, lines 18-21, "The HLR 36 stores ... the current location of the subscriber"), despite applicant now arguing that applicant intends for the SMLC to be identified as the "location server" (as evident by introducing the new Figure A which now identifies "SMLC 38" as a "location server (SMLC) 38").

In conclusion, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a "Serving Mobile Location Center (SMLC)" comprising functionality discussed in applicant's specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Thus, applicant's argument that Aarnio in view of Haeggstrom fail to teach a "location server" as recited in applicant's claims is not persuasive.

Order of Steps

Applicant refers (page 15, first paragraph to page 19, continued paragraph) to examiner's response to an argument at page 2 in the Final Action, mailed March 10, 2004 with respect to the ordering of the steps of applicant's method claims, arguing that the ordering of the steps is essential to the claims. However, applicant's argument that the ordering of the steps is essential to the claims is moot, since Aarnio in view of Haeggstrom clearly teach the steps of applicant's claims in the order recited.

Specifically, as discussed above, Aarnio teaches transmitting the location service message (e.g., location information, see col. 4, lines 18-27) in a downlink from the location server (e.g., LS 22) to a GPRS network (e.g., GRPS network 14) (e.g., see col. 3, line 65 – col. 4, line 22), wherein a GPRS network implicitly comprises a base station subsystem and a serving GPRS support node (which is also admitted by applicant, see Applicant's Remarks, August 14, 2003, pages 3-4); and forwarding the location service message from the GPRS network (e.g., GPRS network 14) to the mobile station (e.g., MS 12) (e.g., see col. 4, lines 18-19). Further, Haeggstrom teaches, in a GPRS network, a possible configuration (e.g., FIG. 2) for arranging communications in a GPRS network comprising a base station subsystem and serving GPRS support node. Specifically, Haeggstrom teaches a serving GPRS support node (e.g., SGSN) is coupled to a location server (e.g., HLR, VLR) by means of a base station subsystem (e.g., at BSC, see col. 4, lines 51-54 wherein BSS comprises BSC) wherein the location message must first be forwarded to the base station subsystem from the location server (e.g., via the only connection provided from HLR to MSC/VLR to BSC, see FIG. 2) and then forwarded to the serving GPRS support node from the base station subsystem (e.g., via the only connection from

BSC to SGSN, see FIG. 2) (e.g., see col. 4, line 6 – col. 5, line 10). As discussed above, the teachings of Haeggstrom provide improved system functionality, whereby a mobile telephone operator can provide calls between a telephone in a data network and a mobile station without using any public switched telephone network, which further, achieves improved speech quality (e.g., see col. 3, line 50 – col. 4, line 19). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the configuration of Haeggstrom within the GPRS network (14) of Aarnio (i.e., coupling the serving GPRS support node to the location server 22 of Aarnio by means of the base station subsystem to accommodate the above-mentioned order of communications in Haeggstrom) in order to provide the additional feature of connection of calls between a telephone in a data network and a mobile station without using any public switched telephone network, further achieving improved speech quality. Thus, Aarnio in view of Haeggstrom clearly teach transmitting in the order of steps recited in applicant's claims.

Further, applicant argues (page 19, first paragraph to page 21, continued paragraph) that Aarnio in view of Haeggstrom fails to teach the other groups of claims comprising messaging in the reverse path. However, as discussed above regarding claims 5, 9 and 17, Aarnio teaches transmitting a location service message (e.g., request to identify MS location) between a mobile station and a location server in the opposite direction in an uplink (e.g., from the mobile station to the GPRS network to the location server, see col. 3, lines 40-42). Thus, Aarnio in view of Haeggstrom clearly teach location messaging is also performed in the reverse path.

Definition of "LMU"

Applicant argues (page 21, first paragraph to page 23, continued paragraph) that independent claims 13 and 17 recite "LMU" in place of the "mobile station" recited in the other independent claims, and that mere recitation of "LMU" distinguishes applicant's claims over the cited art of Aarnio and Haeggstrom. However, applicant relies solely on applicant's specification to make this argument. That is, applicant is asking examiner to read all of the limitations describing "LMU" in applicant's specification to be part of applicant's claims, since the claims are completely absent of any language regarding this element other than, simply, "LMU". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the features described in applicant's specification at page 7, lines 4-9) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). A plain reading of the term "LMU" within the context of the claims would lead a person of ordinary skill in the art to understand an "LMU" to be, generally, a device in a communication system, or at best, a mobile device in a communication system. The mobile stations taught by Aarnio and Haeggstrom clearly teach such a device. That is, applicant's "LMU" as recited in the claims is not supplemented with any claim language which could provide functionality beyond that performed by the mobile stations of Aarnio and Haeggstrom. If applicant intended for the limitations describing an "LMU" in applicant's specification to be considered part of applicant's claims, applicant should have included such language within the claims. As recited above, although the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Accordingly, applicant's argument that applicant's "LMU" recited in applicant's claims is distinguished from a "mobile station" because applicant has described particular functions in applicant's specification regarding the performance of an "LMU" is not persuasive.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

JMP
October 18, 2004

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